

## REMARKS

This is intended as a full and complete response to the Office Action dated June 1, 2005, having a shortened statutory period for response set to expire on September 1, 2005. Claims 1, 5, 9-11, 16, 24-26, 31 and 39-41 have been amended to more clarify embodiments of the invention. Applicant believes no new matter has been introduced by the amendments presented herein. The amendments have been made in a good faith effort to advance prosecution on the merits. Claims 4, 19 and 30 have been cancelled without prejudice with at least one or more of their limitations having been incorporated into claims 1, 16 and 26, respectively. Claims 3 and 39 have been cancelled without prejudice. Applicants reserve the right to subsequently take up prosecution of the claims as originally filed in this application in a continuation, a continuation-in-part and/or a divisional application. Please reconsider the claims pending in the application for reasons discussed below.

Claim 1 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 2,948,059 (*Bodine*) in view of U.S. Patent No. 6,009,948 (*Flanders*). *Bodine* generally proposes a method for unscrewing threaded pipe joints using a sonic vibration generator driven by a motor. *Bodine*, however, does not teach or disclose a controller coupled to the sonic wave generator, wherein the controller is configured to vary at least one of an amplitude, frequency and resonance of the at least one sonic wave, as recited in claim 1. In contrast, *Bodine* merely proposes varying the speed of the drive motor for the vibration generator. Nothing regarding a controller coupled to a sonic wave generator that varies at least one of an amplitude, frequency and resonance of the sonic wave is ever mentioned in *Bodine*. *Flanders* generally proposes a resonator that produces vibrations radially to the wellbore. *Flanders* also does not teach or disclose a controller coupled to the sonic wave generator, wherein the controller is configured to vary at least one of an amplitude, frequency and resonance of the at least one sonic wave, as recited in claim 1. Neither *Bodine* nor *Flanders* teaches or discloses a controller coupled to the sonic wave generator, wherein the controller is configured to vary at least one of an amplitude, frequency and resonance of the at least one sonic wave, as recited in claim 1. Furthermore, there is no suggestion discerned in *Bodine* or

*Flanders* of modifying the devices or methods disclosed therein in the direction of claim 1, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claim 1 is patentable over *Bodine* in view of *Flanders*. Withdrawal of the rejection is respectfully requested.

Claims 2-5, 7, 11, 13, 14, 16, 17, 21, 26, 28, and 32-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Bodine* in view of *Flanders* as applied to claim 1 above, and further in view of U.S. Patent No. 5,037,524 (*Juvan*). Claim 39 has been cancelled without prejudice, thereby rendering the rejection with respect to claim 39 moot. Neither *Bodine* nor *Flanders* nor *Juvan* teaches or discloses a controller coupled to the sonic wave generator, wherein the controller is configured to vary at least one of an amplitude, frequency and resonance of the at least one sonic wave, as recited in claims 1 and 5. Furthermore, there is no suggestion discerned in *Bodine*, *Flanders* or *Juvan* of modifying the devices or methods disclosed therein in the direction of claims 1 and 5, nor does there appear to be any suggestion of the desirability of such modifications. Since claims 2, 7 and 35-38 depend from claims 1 and 5 respectively, and since neither *Bodine* nor *Flanders* nor *Juvan*, alone or in combination, teaches, discloses or suggests all the limitations of claims 1 and 5, claims 2, 7 and 35-38 are therefore also patentable over *Bodine*, *Flanders* and *Juvan*. Withdrawal of the rejection is respectfully requested.

Claims 3-4 have been cancelled without prejudice, thereby rendering the rejection with respect to those claims moot.

*Bodine* also fails to teach or disclose means for varying at least one of an amplitude, frequency and resonance of the sonic waves, as recited in claim 11. Like *Bodine*, *Flanders* also fails to teach or disclose means for varying at least one of an amplitude, frequency and resonance of the sonic waves, as recited in claim 11. Like *Bodine* and *Flanders*, *Juvan* also fails to teach or disclose means for varying at least one of an amplitude, frequency and resonance of the sonic waves, as recited in claim 11. Thus, neither *Bodine* nor *Flanders* nor *Juvan* teaches or discloses means for varying at least one of an amplitude, frequency and resonance of the sonic waves, as recited in claim 11. Furthermore, there is no suggestion discerned in *Bodine*, *Flanders* or *Juvan* of modifying the devices or methods disclosed therein in the direction of claim

11, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claim 11 is patentable over *Bodine* in view of *Flanders* and *Juvan*. Claims 13 and 14 are also patentable over *Bodine* in view of *Flanders* and *Juvan* since they depend from claim 11. Withdrawal of the rejection is respectfully requested.

*Bodine* also fails to teach or disclose a back-off tool having two or more sonic wave generators, each sonic wave generator having a piezoelectric ceramic; and activating the back-off tool the two or more sonic wave generators simultaneously to cause the sonic wave generator to generate sonic waves, as recited in claim 16. Like *Bodine*, *Flanders* also fails to teach or disclose a back-off tool having two or more sonic wave generators, each sonic wave generator having a piezoelectric ceramic; and activating the back-off tool the two or more sonic wave generators simultaneously to cause the sonic wave generator to generate sonic waves, as recited in claim 16. Like *Bodine* and *Flanders*, *Juvan* also fails to teach or disclose a back-off tool having two or more sonic wave generators, each sonic wave generator having a piezoelectric ceramic; and activating the back-off tool the two or more sonic wave generators simultaneously to cause the sonic wave generator to generate sonic waves, as recited in claim 16. Thus, neither *Bodine* nor *Flanders* nor *Juvan* teaches or discloses a back-off tool having two or more sonic wave generators, each sonic wave generator having a piezoelectric ceramic; and activating the back-off tool the two or more sonic wave generators simultaneously to cause the sonic wave generator to generate sonic waves, as recited in claim 16. Furthermore, there is no suggestion discerned in *Bodine*, *Flanders* or *Juvan* of modifying the devices or methods disclosed therein in the direction of claim 16, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claim 16 is patentable over *Bodine* in view of *Flanders* and *Juvan*. Claims 17 and 21 are also patentable over *Bodine* in view of *Flanders* and *Juvan* since they depend from claim 16. Withdrawal of the rejection is respectfully requested.

*Bodine* also fails to teach or disclose generating sonic waves through the back-off tool to loosen the threaded connection, while moving a neutral weight position along the tubular member, as recited in claim 26. Like *Bodine*, *Flanders* also fails to teach or disclose generating sonic waves through the back-off tool to loosen the threaded

connection, while moving a neutral weight position along the tubular member, as recited in claim 26. Like *Bodine* and *Flanders*, *Juvan* also fails to teach or disclose generating sonic waves through the back-off tool to loosen the threaded connection, while moving a neutral weight position along the tubular member, as recited in claim 26. Thus, neither *Bodine* nor *Flanders* nor *Juvan* teaches or discloses generating sonic waves through the back-off tool to loosen the threaded connection, while moving a neutral weight position along the tubular member, as recited in claim 26. Furthermore, there is no suggestion discerned in *Bodine*, *Flanders* or *Juvan* of modifying the devices or methods disclosed therein in the direction of claim 26, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claim 26 is patentable over *Bodine* in view of *Flanders* and *Juvan*. Claims 28 and 32-34 are also patentable over *Bodine* in view of *Flanders* and *Juvan* since they depend from claim 26. Withdrawal of the rejection is respectfully requested.

*Bodine* also fails to teach or disclose means for generating sonic waves at a selected frequency while moving the back-off tool up and down the tubular member, as recited in claim 40. Like *Bodine*, *Flanders* also fails to teach or disclose means for generating sonic waves at a selected frequency while moving the back-off tool up and down the tubular member, as recited in claim 40. Like *Bodine* and *Flanders*, *Juvan* also fails to teach or disclose means for generating sonic waves at a selected frequency while moving the back-off tool up and down the tubular member, as recited in claim 40. Thus, neither *Bodine* nor *Flanders* nor *Juvan* teaches or discloses means for generating sonic waves at a selected frequency while moving the back-off tool up and down the tubular member, as recited in claim 40. Furthermore, there is no suggestion discerned in *Bodine*, *Flanders* or *Juvan* of modifying the devices or methods disclosed therein in the direction of claim 40, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claim 40 is patentable over *Bodine* in view of *Flanders* and *Juvan*. Withdrawal of the rejection is respectfully requested.

*Bodine* also fails to teach or disclose activating the back-off tool to cause the sonic wave generator to generate sonic waves, while moving a neutral weight position up and down the tubular member, as recited in claim 41. Like *Bodine*, *Flanders* also fails to teach or disclose activating the back-off tool to cause the sonic wave generator

to generate sonic waves, while moving a neutral weight position up and down the tubular member, as recited in claim 41. Like *Bodine* and *Flanders*, *Juvan* also fails to teach or disclose activating the back-off tool to cause the sonic wave generator to generate sonic waves, while moving a neutral weight position up and down the tubular member, as recited in claim 41. Thus, neither *Bodine* nor *Flanders* nor *Juvan* teaches or discloses activating the back-off tool to cause the sonic wave generator to generate sonic waves, while moving a neutral weight position up and down the tubular member, as recited in claim 41. Furthermore, there is no suggestion discerned in *Bodine*, *Flanders* or *Juvan* of modifying the devices or methods disclosed therein in the direction of claim 41, nor does there appear to be any suggestion of the desirability of such modifications. Therefore, claim 41 is patentable over *Bodine* in view of *Flanders* and *Juvan*. Withdrawal of the rejection is respectfully requested.

Claims 8-10, 19 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Bodine* in view of *Flanders* and *Juvan* as applied to claims 1, 5, or 16 above, and further in view of U.S. Patent No. 6,012,521 (*Zunkel*). Claim 19 has been cancelled without prejudice, thereby rendering the rejection with respect to claim 19 moot.

With respect to claims 8-10, neither *Bodine* nor *Flanders* nor *Juvan* nor *Zunkel*, alone or in combination, teaches or discloses a controller coupled to the at least one sonic wave generator, wherein the controller is configured to vary at least one of an amplitude, frequency and resonance of the at least one sonic wave, as recited in claim 5. Furthermore, there is no suggestion discerned in *Bodine* nor *Flanders* nor *Juvan* nor *Zunkel* of modifying the devices or methods disclosed therein in the direction of claim 5, nor does there appear to be any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Since claims 8-10 depend from claim 5 and since neither *Bodine* nor *Flanders* nor *Juvan* nor *Zunkel*, alone or in combination, teaches, discloses or suggests all the limitations of claim 5, claims 8-10 are therefore also patentable over *Bodine*, *Flanders*, *Juvan* and *Zunkel*. Withdrawal of the rejection is respectfully requested.

With respect to claim 42, neither *Bodine* nor *Flanders* nor *Juvan* nor *Zunkel*, alone or in combination, teaches or discloses a controller coupled to the at least one sonic wave generator, wherein the controller is configured to vary at least one of an amplitude, frequency and resonance of the at least one sonic wave, as recited in claim 1. Furthermore, there is no suggestion discerned in *Bodine* nor *Flanders* nor *Juvan* nor *Zunkel* of modifying the devices or methods disclosed therein in the direction of claim 1, nor does there appear to be any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Since claim 42 depends from claim 1 and since neither *Bodine* nor *Flanders* nor *Juvan* nor *Zunkel*, alone or in combination, teaches, discloses or suggests all the limitations of claim 1, claim 42 is therefore also patentable over *Bodine*, *Flanders*, *Juvan* and *Zunkel*. Withdrawal of the rejection is respectfully requested.

Claims 15, 22, 23, 29, and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Bodine* in view of *Flanders* and *Juvan* as applied to claims 11, 16, or 26 above, and further in view of U.S. Patent No. 2,305,261 (*Kinley*). Claim 30 has been cancelled without prejudice, thereby rendering the rejection with respect to claim 30 moot. At least one or more limitations of claim 30 have been added to claim 26.

With respect to claim 15, neither *Bodine* nor *Flanders* nor *Juvan* nor *Kinley*, alone or in combination, teaches or discloses means for varying at least one of an amplitude, frequency and resonance of the sonic waves, as recited in claim 11. Furthermore, there is no suggestion discerned in *Bodine* nor *Flanders* nor *Juvan* nor *Kinley* of modifying the devices or methods disclosed therein in the direction of claim 11, nor does there appear to be any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Since claim 15 depends from claim 11 and since neither *Bodine* nor *Flanders* nor *Juvan* nor *Kinley*, alone or in combination, teaches, discloses or suggests all the limitations of claim 11, claim 15 is therefore also patentable over *Bodine*, *Flanders*, *Juvan* and *Kinley*. Withdrawal of the rejection is respectfully requested.

With respect to claims 22-23, neither *Bodine* nor *Flanders* nor *Juvan* nor *Kinley*, alone or in combination, teaches or discloses a back-off tool having two or more sonic wave generators, each sonic wave generator having a piezoelectric ceramic; and activating the back-off tool the two or more sonic wave generators simultaneously to cause the sonic wave generator to generate sonic waves, as recited in claim 16. Furthermore, there is no suggestion discerned in *Bodine* nor *Flanders* nor *Juvan* nor *Kinley* of modifying the devices or methods disclosed therein in the direction of claim 16, nor does there appear to be any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Since claims 22-23 depend from claim 16 and since neither *Bodine* nor *Flanders* nor *Juvan* nor *Kinley*, alone or in combination, teaches, discloses or suggests all the limitations of claim 16, claims 22-23 are therefore also patentable over *Bodine*, *Flanders*, *Juvan* and *Kinley*. Withdrawal of the rejection is respectfully requested.

With respect to claim 29, neither *Bodine* nor *Flanders* nor *Juvan* nor *Kinley*, alone or in combination, teaches or discloses generating sonic waves through the back-off tool to loosen the threaded connection, while moving a neutral weight position along the tubular member, as recited in claim 26. Furthermore, there is no suggestion discerned in *Bodine* nor *Flanders* nor *Juvan* nor *Kinley* of modifying the devices or methods disclosed therein in the direction of claim 26, nor does there appear to be any suggestion of the desirability of such modifications. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997). Since claim 29 depends from claim 26 and since neither *Bodine* nor *Flanders* nor *Juvan* nor *Kinley*, alone or in combination, teaches, discloses or suggests all the limitations of claim 26, claim 29 is therefore also patentable over *Bodine*, *Flanders*, *Juvan* and *Kinley*. Withdrawal of the rejection is respectfully requested.

Claims 24, 25 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 24, 25 and 31 have

been rewritten in independent form including all of the limitations of the base claim and all intervening claims. Accordingly, claims 24, 25 and 31 are in condition for allowance.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the claimed invention. Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this office action. Accordingly, allowance of the claims is respectfully requested.

Respectfully submitted,



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